

Claims

What is claimed is:

1. A liquid recovery method for a compressor including a compression mechanism, a housing for containing the compression mechanism, and a reservoir at a lower part of the housing for holding liquid, for recovering the liquid that has been supplied to lubricate sliding parts of the compression mechanism back into the reservoir, the method comprising:
 - 10 collecting the liquid, that is supplied from the reservoir to the compression mechanism, immediately after being discharged into the housing with or without compressed fluid by a circumferential wall that rotates around a drive shaft of the compression mechanism in synchronism therewith;
 - 15 urging the liquid outward from the wall through an outlet formed at a predetermined axial location of the wall under centrifugal force; and
- receiving the liquid by a liquid return cover fixed around the outlet of the circumferential wall so as to return 20 the liquid to the reservoir.

2. A liquid recovery method for a compressor including a compression mechanism, a housing for containing the compression mechanism, and a reservoir at a lower part of the housing for holding liquid, for recovering the liquid that has 25 been supplied to lubricate sliding parts of the compression

mechanism back into the reservoir, the method comprising:

collecting the liquid, that is supplied from the reservoir to the compression mechanism, immediately after being discharged into the housing through sliding parts that 5 are arranged around a drive shaft and do not contribute to the compression by a circumferential wall that rotates around the drive shaft of the compression mechanism in synchronism therewith;

10 urging the liquid outward from the wall through an outlet formed at a predetermined axial location of the wall under centrifugal force; and

receiving the liquid by a liquid return cover fixed around the outlet of the circumferential wall so as to return the liquid to the reservoir.

15 3. A liquid recovery system for a compressor including a compression mechanism, a housing for containing the compression mechanism, and a reservoir at a lower part of the housing for holding liquid, for recovering the liquid that has been supplied to lubricate sliding parts of the compression 20 mechanism back into the reservoir, the system comprising:

a liquid collection member including a circumferential wall that surrounds an area into which liquid is discharged from the compression mechanism with or without compressed fluid and rotates around a drive shaft directly or indirectly 25 therewith and an outlet at a preset axial location of the wall,

the liquid collection member for collecting discharged liquid and throwing the liquid out through the outlet under centrifugal force; and

5 a liquid return cover fixed to surround the outlet of the circumferential wall for receiving the exiting liquid and guiding the liquid back into the reservoir.

4. A liquid recovery system for a compressor including a compression mechanism, a housing for containing the compression mechanism, and a reservoir at a lower part of the 10 housing for holding liquid, for recovering the liquid that has been supplied to lubricate sliding parts of the compression mechanism back into the reservoir, the system comprising:

a liquid collection member including a circumferential wall that surrounds an area into which liquid is discharged 15 from the compression mechanism through sliding parts that are located around a drive shaft but do not contribute to the compression, the circumferential wall being rotated around the drive shaft directly or indirectly therewith, and an outlet at a preset axial location of the wall, the liquid collection 20 member for collecting discharged liquid and throwing the liquid out through the outlet under centrifugal force; and

a liquid return cover surrounding the outlet of the circumferential wall for receiving the exiting liquid and guiding the liquid back into the reservoir.

25 5. A liquid recovery system for a compressor including a

compression mechanism, an electric motor for driving the compression mechanism, a housing for containing the compression mechanism and the electric motor, and a reservoir at a lower part of the housing for holding liquid, for 5 recovering the liquid that has been supplied to lubricate sliding parts of the compression mechanism back into the reservoir, the system comprising:

a liquid collection member including a circumferential wall that surrounds an area between the compression mechanism 10 and the electric motor into which liquid is discharged through sliding parts that are located around a drive shaft but do not contribute to the compression, the circumferential wall being rotated around the drive shaft directly or indirectly therewith, and an outlet at a preset axial location of the 15 wall, the liquid collection member for collecting discharged liquid and throwing the liquid out through the outlet under centrifugal force; and

a liquid return cover surrounding the outlet of the circumferential wall for receiving the exiting liquid and 20 guiding the liquid back into the reservoir.

6. A liquid recovery system for a horizontally installed compressor including a compression mechanism, an electric motor for driving the compression mechanism, a housing for containing the compression mechanism and the electric motor, 25 and a reservoir at a lower part of the housing for holding

liquid, for recovering the liquid that has been supplied to lubricate sliding parts of the compression mechanism back into the reservoir, the system comprising:

5 a liquid collection member including a circumferential wall that surrounds an area between the compression mechanism and the electric motor into which liquid is discharged through sliding parts that are located around a drive shaft but do not contribute to the compression, the circumferential wall being rotated around the drive shaft directly or indirectly
10 therewith, and an outlet at a preset axial location of the wall, the liquid collection member for collecting discharged liquid and throwing the liquid out through the outlet under centrifugal force; and

15 a liquid return cover surrounding the outlet of the circumferential wall for receiving the exiting liquid and guiding the liquid back into the reservoir.

7. The liquid recovery system according to claim 5 or 6, wherein an opening that the circumferential wall has at one end opposite the electric motor is doubled as the outlet.

20 8. The liquid recovery system according to any one of claims 3 to 6, wherein the circumferential wall is spread outward along an axial direction toward the outlet side.

25 9. The liquid recovery system according to any one of claims 3 to 6, wherein the liquid collection member is located outside a rotor balancer which is either an integral or

separate part.

10. The liquid recovery system according to any one of claims 3 to 6, wherein the liquid return cover is designed so that it includes a lowermost portion from which to guide the 5 liquid into the reservoir.

11. The liquid recovery system according to claim 10, wherein the liquid return cover is designed so that it guides the liquid from the lowermost portion via a drain hole or path into the reservoir.